

# DIGITAL LITERACY KNOWLEDGE, SKILLS AND COMPETENCIES OF NEW GENERATION INFORMATION SCIENCE PROFESSIONALS FOR SERVICE DELIVERY IN ACADEMIC LIBRARIES

By  
**PETER OLUBUNMI OLUBIYO**  
and  
**JUDE TIMILEHIN OLUBIYO**

## Abstract

*Digital skills enable the use of digital tools and work in computerized environments. Many libraries face challenges managing automated systems and digital resources due to a lack of skilled manpower. Library services, central to information delivery, are evolving with the global digital revolution. Librarians now require competencies in digital operations to meet modern demands. These include computer literacy, proficiency in Microsoft Office, systems analysis, integrated library management, website and metadata development, and use of open-source software. Digital creativity, encompassing programming, website design, and digital media manipulation, further enhances professional effectiveness. Incorporating digital skills equips librarians with resource sharing, social networking, blogging, instant messaging, and aiding users in accessing information. Specific skills in the library context include metadata creation, library software management, institutional repository development, library networking, and application of barcode and RFID technology. Mastery of these skills not only enhances job performance but also improves economic status and career progression for librarians.*

**Key Words: Digital Literacy Knowledge, Digital Skills, Digital Competencies, New Generation Information Science Professionals, Service Delivery, Academic Libraries**

## Introduction

Information services encompass the entirety of information delivery within any information organization and are evolving alongside the global trend of digital transformation. Librarians now require advanced skills and technical competencies to effectively navigate the complexities of digital operations and meet the needs of patrons.

Modern methods of scholarly communication, the expansion of virtual library spaces, the rise

of social media, and the proliferation of mobile devices and applications have drastically reshaped traditional academic libraries. These changes, driven by rapidly evolving information and communication technologies (ICTs), necessitate a new generation of library and information science (LIS) professionals equipped to mediate this transformed landscape effectively (Raju, 2014).

Digital skills, as defined by Trepanier (2012) in Bassey & Ayeni (2022), involve using digital information systems, such as hardware and software, while ensuring the protection of digital information. Digital literacy extends to skills like using computer networks, engaging in online communities, critically evaluating information, and understanding societal issues related to digital technologies. Chinien and Boutin (2011) describe digital skills as the ability to use digital tools and work in computerized environments. Despite the adoption of digital resources in libraries, inadequate skilled manpower often hampers their effective management.

Digital skills, including the ability to locate, evaluate, and create information through digital tools, are essential for library professionals to thrive in the changing technological landscape. This paper focuses on the evolving importance of digital skills for library professionals, the specific competencies required, and their implications for enhancing library services in the digital age.

## **Digital Literacy**

Digital literacy is the knowledge and understanding of digital tools and services in a digital environment for working results. According to Ofilli, (2017) in Bassey and Ayeni (2022), a digital literate person should have the knowledge and skills to use traditional

computers, such as desktop PCs and laptops - computer literacy, he should be able to objectively analyse facts to form accurate judgment- critical thinking, he must have the ability to engage in online communities'' meetings and social networks while in obedience to behavioural protocols, possess the capability to find, capture, disseminate and evaluate information. Such a person should have the capability to understand the emerging societal issues caused by the evolution of digital technologies and possess critical thinking skills. He should also possess a range of digital skills, know the basic principles of computing devices, and possess adequate skills in handling computer networks and the internet. Digital skills describe the possession of knowledge, skills, and behaviour relevant to the use of digital technologies such as tablets, laptops, smartphones, and desktop PCs among others. The concept of digital skill is used about the capacity to use and as well understand content from digital platforms.

Some scholars, Cartelli (2010), and Martin and Grudziecki (2006) in Bassey and Ayeni (2022) are of the view that digital skills can also be called digital competence. European Commission (2007), Jisc, (2011) in Bassey and Ayeni(2022) also referred to digital skills as digital capacities while calling them e-skills. Whatever name it is called, it seeks to explain the intellectual capacity of people vis-à-vis information and communication technologies. Knowledge gained from digital environments. According to Mansour, (2017), Mishra, (2018) in Bassey and Ayeni(2022) this definition, Digital skills refer to the ability to recognize, manage, integrate, access, retrieve, appraise and assimilate information in a digital environment. It reveals the desire to learn that contributes to economic, cultural, social and political aspects of life.

### **Digital Competencies: An Overview**

European Union, (2018) in Atchrimi and Ogunbodede (2024) described digital competence as the ability to engage with and use digital technology confidently, critically, and responsibly for learning, at work, and for participation in society. In this sense, "digital competencies" refer to the abilities required of librarians to function well in computerized library settings. These abilities include the capacity to utilize computers and other technological tools to find, assess, utilize, store, produce, and exchange information, as well as to communicate and take part in collaborative networks over the Internet. The librarian can work efficiently in a digital library setting. For instance, librarians' abilities to assist library patrons in finding, organizing, understanding, and creating information utilizing digital technologies.

Seenaa and Pillai, (2014) Izuagbe et al., (2019) in Bassey and Ayeni(2022) expressed that Digital skills are computer literacy, proficiency in all Microsoft Office applications, ability to design, develop and analyse systems, ability to work with integrated library management systems, applying new technologies into library services, library website development, metadata development, information and research skill, ability to use opensource software, ability to create different file formats etc. Digital skills help professionals of all works of life to develop skills that can add to their economic status and improve their overall job performance and standard of living. Building on digital literacy is the concept of digital creativity which is the expression of creative skills in the digital medium. This can include programming, websites and the generation and manipulation of digital images. There is a need for librarians to possess these digital skills so that they can use them to progress in their jobs and their careers. With these skills, librarians will be more equipped for resource sharing, social networking, surfing the internet, instant messaging,

blogging, and a host of other digital-oriented activities. These skills can also help them in their jobs to assist users get desired information and education. In a library context, digital skills are creating metadata/tags, photoshop, installing and managing library software, creating institutional repositories, managing library consortium, library networking, barcode and radio-frequency identification (RFID) technology, and website design ). Library staff needs to master these skills, as it will enable them to manage library technology infrastructures and online resources. They also need to make informed decisions relative to technology adoption. Accordingly, there is a need for librarians to have Digital Skills. For instance, they need skills for resource sharing, digital preservation and repositories, social networking, searching the Internet, instant messaging, blogging, and other digital-oriented activities.

One of the critical issues to consider in the implementation of modern technologies in libraries is the digital skills of library staff. This is important because skill is one of the essential requirements for the adoption and utilization of new technologies. Olijó (2018) and Bassey and Ayeni (2022) in making a case on the importance of skill in the utilization of new technologies noted that even though progress has been recorded in the area of hardware and software competence, the challenge of low utilization is a limitation in harnessing the potentials of new technologies. It was regretted that poor knowledge and low usage of installed systems had been recognized as substantial determinants predicting the "productivity paradox" regarding poor return on investments from organizations whose focus is on innovations in digital technologies. A study of the digital skills on technology acceptance of librarians and library professionals is particularly important because poor knowledge of digital technologies will likely have a corresponding negative use.

## **Digital literacy and competencies Needs of librarians**

Emerging technologies significantly enhance academic library functions, necessitating librarians to adapt by sharpening digital literacy skills (Bitri, 2014, in Osinulu, 2022). However, many professionals in Nigerian academic libraries lack essential skills, leading to low productivity and job stagnation (OECD, 2016; Iyang & Mngutayo, 2018, in Osinulu, 2022). Digital literacy involves both cognitive and technical competencies for effectively using ICT to locate, evaluate, and share information (American Library Association, 2013, in Bassey & Ayeni, 2022).

Librarians must re-skill and up-skill to thrive in the digital era by mastering tools such as OPAC, cataloguing software, and content creation technologies. Research shows that these skills improve job performance, enhance service delivery, and promote professional development (Nawakanma, 2003; Emiri, 2017, in Bassey & Ayeni, 2022). Additionally, proficiency in ICT tools facilitates communication, teamwork, and user satisfaction.

Studies emphasize the importance of continuous digital literacy training through formal education or informal learning (Dewi et al., 2021, Bassey & Ayeni, 2022). Librarians play a vital role in fostering digital literacy among users but must first possess these competencies to meet the demands of the 4th Industrial Revolution (Lau, 2006, in Chukwueke & Idris, 2023). Despite advances, many still lack the skills to effectively utilize digital collections for diverse information needs (Fakunle et al., 2022; Igbo & Imo, 2020, in Chukwueke & Idris, 2023).

Digital literacy equips librarians to adapt to technological advancements, manage digital resources, and engage in activities like blogging and social networking (Emiri, 2015, in Chukwueke & Idris, 2023). The integration of educational software and digital tools in

libraries enriches teaching and learning experiences, underscoring the need for updated curricula in developing countries to align with global trends (Mulat & Natarajan, 2020).

This growing need for digital literacy highlights its role in enhancing library services, professional growth, and bridging the digital divide.

### **Digital Literacy and Competencies of 21<sup>st</sup> Century Librarians**

In the 21st century, librarianship has transitioned from traditional print delivery to digital delivery, necessitating a comprehensive shift in knowledge and skill sets. The digital era demands librarians to embrace digitization, electronic publishing, Web 2.0 and 3.0 technologies, social media, open access, and rapidly evolving ICTs. These innovations significantly reshape the competencies required for effective service delivery in academic libraries (Choi & Rasmussen, 2009; Nonthacumjane, 2011, Raju, 2014).

The integration of digital library applications with web technologies underscores the importance of technical expertise in areas such as digital library architecture, metadata creation, HTML coding, database management, and web design. These proficiencies are essential for creating, organizing, and preserving digital content while ensuring accessibility through metadata and technical standards (Choi & Rasmussen, 2006, 2009; Ocholla & Shongwe, 2013, Raju, 2014).

Moreover, the emergence of eScience and eResearch has introduced the challenge of research data curation. Libraries are uniquely positioned to lead metadata development for research data sets, facilitating data reuse and interdisciplinary collaboration (Luce, 2008, in Raju, 2014). New job roles reflecting strong ICT integration are reshaping the LIS job market globally (Ocholla & Shongwe, 2013; Riley-Huff & Rholes, 2011, in Raju, 2014).

To meet evolving user needs and achieve institutional objectives, libraries must invest in capacity-building programs for staff. These initiatives support the acquisition of digital literacy skills essential for navigating technological advancements and delivering user-centred services (Thompson, 2009, in Agim & Azolo, 2024).

### **Challenges to Digital Literacy Skills and Competencies among Librarians**

Hamad et al. (2020) in Atchrimi & Ogunbodede (2024) identified several key obstacles faced by librarians in Jordan in acquiring digital skills. These challenges include inadequate funding, a lack of financial support from the library administration for attending workshops, and poor library infrastructure. Likewise, Emiri (2015); Okeji et al. (2019); Ukwoma et al., (2016) in Atchrimi & Ogunbodede (2024) highlighted the challenges faced by academic librarians in Nigeria, such as a lack of digital facilities, a lack of sponsorship, and an unreliable electricity supply. Also noted various obstacles to learning digital literacy, including insufficient funds for professional skill development, a lack of ICT facilities, and a shortage of ICT. One of the major obstacles to learning digital literacy is the absence of ICT facilities, inadequate Internet speed, and the absence of comprehensive digital literacy programs and standards.

However, academic libraries, library associations, and the administration of schools must support their librarians by offering in-house training and financial assistance for attending workshops to enhance their digital skills to effectively function in the academic library of the twenty-first century. Emezie and Nwaohiri, (2013) expressed that Poor internet connectivity In a digital library in Nigeria is alarming. The internet plays a primary role in digital information but equitable access to the internet in Nigerian academic libraries is yet to



be realized. The existing internet connections for most people are slow. Olabude (2007) in Emezie and Nwaohiri, (2013) state that many constraints led to the poor internet development in Africa, one of which is the initial capital outlay to install internet facilities. This is because almost all African countries are experiencing huge debts, and the foreign exchange required to purchase the facilities is lacking.

Challenges to the acquisition of digital skills include poor development of technology, infrastructure, poor attitude of librarians, poor internet connectivity and telecommunication infrastructure, lack of competent trainers for digital skills, none availability of digital library courses, lack of funds, and lack of commitment from management to send staff for further courses. Tanawade (2011) in Mbagwu (2023) stated that incompetence on the side of Librarians, many of them lack self-reliance in the face of growing information technology for service delivery, this problem slows the delivery of services and also delays productivity.

Sahabi and Elvis (2021) in Mbagwu (2023) stated that lack of basic skills in the use of information technology has become a bottleneck for better library services, Anira (2011) in Mbagwu (2023) added that librarians who do not have advanced ICT skills cannot provide effective office services, based on that any librarian who do not have skills especially ICT skill has a problem in providing digital library services in this digital age. The strength of any library lies in the information resources provided both printed and online. Nawalu (2000); Sahabi and Elvis (2021) in Mbagwu (2023) opined that funds are needed to manage the services in the library but the level of Government support to the education sector is not enough. That is why emphasized that the problems with computer applications in African libraries include indifference and inadequate Government funding. He emphasized that funding is an important tool for library service delivery.

On the challenges facing the acquisition of digital literacy and its application in service delivery, the study of Okeji et. al. (2020) reported in Chukwueke and Idris (2023), power failure and poor Internet. In light of the above, the authors recommended that academic librarians should endeavour to acquire all the digital literacy skills required for perfect service delivery, among other things.

Regrettably, sufficient access and use of digital resources by library staff in developing countries such as Nigeria seems poor as a result of poor ICT policies in the country. More so, digital literacy and competencies in the use of computer and ICT solutions also appear to be very low amongst many library staff. The use of digital educational software, digital gadgets and resources to provide services, and teach library curriculum, and course materials is not available to library staff to enhance their job performance. Consequently, many library staff appear not to have the requisite digital skills to operate the computer, access their email interact on the Internet or use technological gadgets to provide services. Similarly, many libraries in Nigeria are not automated and this affects the service delivery and performance of the library staff (Agim & Azolo, 2024)

### **Recommendations and Strategies for Effective Acquisition of Digital Literacy Skills and Competencies among Library and Information Science Professionals**

The government should allocate funds for training and purchase of Digital equipment to establish virtual or electronic libraries. Nigerian academic libraries in the 21st century are gradually changing to fit into their clients' information-seeking patterns. The situation has brought about the establishment of digital libraries to complement traditional ones. This is evidenced in the attempt to digitize library resources to cater for the information needs of new generation users that is, the 21st century library users who exhibit much dexterity in using new sources and new technologies. (Emezie & Nwaohiri, 2013).

As the disseminators of information, librarians in the 21st century need to be aware of these significant changes and as such employ their technological know-how and intellectual masterpieces to retain the leading role of the academic libraries in supporting teaching, learning and research. This means that the 21st-century librarian will have to be armed with competent skills that will enhance the provision of effective library services to meet client's changing information needs.

On the competencies and skills needed for 21st-century library professionalism, Tennant (1999) in Emezie & Nwaohiri, (2013) identified important personal traits that must be learned: the capacity to learn constantly and quickly; flexibility; innate scepticism; propensity to take risks; abiding public service perspective; good interpersonal skills; skill at enabling and fostering change; and capacity for and desire to work as 21st Century Librarians and Effective Information Service Delivery independently and collectively. Omekwu (2003) in Emezie and Nwaohiri, (2013), mentions basic knowledge of computers and their capabilities; Competency with search engines; internet facilities; e-mail; internet navigator tools, web browsers and web file formats; database software; internet development and management know-how. Also, some of the 21st-century skills according to Krishnan (2011) in Emezie and Nwaohiri, (2013) include communication and collaboration, creativity and innovation, critical thinking and problem-solving, media literacy, ICT literacy, flexibility and adaptability. The skills aforementioned are familiar to us; the challenge is how to harness these skills for effective library services that must be learned for digital-age relevance.

The human resource is a vital aspect of any organization. The success or failure of any organization depends to a large extent on human capacity. Therefore, experts who will train librarians on digital knowledge and skill acquisition should be hired to train them in Nigerian

Academic Libraries and strong internet bandwidth should be provided for fast internet services (Emezie& Nwaohiri, 2013).

Vibrant ICT policies should be formulated by the National Universities Commission and adopted by academic libraries for progressive development and growth in the acquisition of digital skills and training for satisfying service delivery in the digital age/e-world.

Lastly, Library administrators should give orientation to librarians on the need for attitudinal change toward imbibing the digital knowledge and information provided by IT trainers.

## **Conclusion**

In the rapidly evolving landscape of the 21st century, librarians play a crucial role as disseminators of information, tasked with adapting to significant technological advancements and changing user needs. To maintain their relevance and effectiveness in supporting teaching, learning, and research, librarians must cultivate a robust set of digital literacy skills and competencies. As highlighted by various scholars, these competencies encompass not only technical skills related to information and communication technologies (ICTs) but also essential personal traits such as adaptability, critical thinking, and effective communication.

The challenges faced by librarians in acquiring these skills—including inadequate funding, insufficient infrastructure, and a lack of comprehensive training programs—must be addressed through strategic initiatives. Academic libraries and their administrations should prioritize investment in professional development, ensuring that librarians receive the training necessary to thrive in a digital environment. Additionally, the formulation of vibrant ICT

policies by governing bodies like the National Universities Commission can facilitate the progressive development of digital skills among library staff.

Ultimately, fostering a culture of continuous learning and adaptability within academic libraries is vital for enhancing service delivery in the digital age. By equipping librarians with the necessary tools and knowledge, libraries can better meet the diverse information needs of their users, thereby solidifying their position as indispensable resources in an increasingly digital world.

## References

- Agim, E.C & Azolo, E.M. (2021). Digital Literacy and Job Performance Of 21st Century Library Staff in Imo State. *Library Research Journal*, 15-26.
- Agim, N. & Azolo, A. (2024.). Challenges to digital literacy skills and competencies among librarians in Nigeria: A review. *Library Philosophy and Practice*. Retrieved from <https://digitalcommons.unl.edu/libphilprac>
- American Library Association. (2013). *Digital literacy, libraries, and the 21st century: A report of the Digital Literacy Task Force*. Chicago, IL: American Library Association.
- American Library Association. (n.d.). Skills for 21st-century librarians: Learning objectives for library programming. Retrieved from <https://www.ala.org/tools/programming/21stcenturyskills>
- Atchrimi, A. & Ogunbodede, K.F.(2024). Digital Competencies of Librarians in University Libraries in Nigeria made. *Zambia Journal of Library & Information Science*, 8 (1), 9-13. doi:10.5281/zenodo.12586132
- Atchrimi, A., & Ogunbodede, E. (2024). Digital competencies in library and information science: A review of current trends. *Journal of Digital Learning and Education*, 2(2), 70-79. <https://doi.org/10.52562/jdle.v2i2.316>
- Bassey, A. E., & Ayeni, A. O. (2022). Digital skills and competencies for library professionals in the digital age. *Library Management*, 43(1/2), 1-15.
- Bassey, R. C. & Ayeni, F.A. (2022).Exploring the Digital Skills of Library Staff on Technology Acceptance in Nigerian Polytechnics: A Study of Federal Polytechnics in South-West Nigeria. *International Journal of Advances in Engineering and Management (IJAEM)*, 4(8). 1042-1052. [www.ijaem.net](http://www.ijaem.net)
- Bitri, M. (2014). The impact of emerging technologies on academic library functions. *Library Management*, 35(1), 23-34.

- Cartelli, A. (2010). Digital competence: A new challenge for education. *Journal of Educational Technology & Society*, 13(3), 1-14.
- Chinien, C., & Boutin, F. (2011). Digital skills: A conceptual framework for understanding digital literacy in the workplace. *International Journal of Information and Education Technology*, 1(3), 215-219.
- Chukwueke, C. & Idris, I. H. (2023). Librarians' Digital Literacy Skills and Services Delivery in Academic Libraries in Taraba State, Nigeria: A Correlation. *Library Philosophy and Practice (e-journal)*. <https://digitalcommons.unl.edu/libphilprac/7565>
- Dewi, N. K., Supriyadi, S., & Agustina, R. (2021). Continuous digital literacy training for librarians: A necessity in the digital age. *Library Philosophy and Practice*, 1-15.
- Emezie, N. A., & Nwaohiri, N. M. (2013). 21st century librarians and effective information service delivery. *International Journal of Information and Knowledge Management*, 3(1), 33-45. <https://doi.org/10.4314/ijikm.v3i1.4>
- Emiri, B. (2015). Digital literacy and its impact on library services in Nigeria. *International Journal of Library and Information Science*, 7(5), 72-79.
- Emiri, B. (2017). Enhancing librarian competencies through digital skills training: A case study from Nigeria. *Library Management*, 38(7/8), 410-420.
- European Commission. (2007). *Digital Competence: The Key to Lifelong Learning*. Brussels: European Union.
- European Union. (2018). *Digital Competence Framework 2.0*. Luxembourg: Publications Office of the European Union.
- Fakunle, B., Ojo, A., & Oladipo, O. (2022). The role of digital literacy in enhancing library services in Nigeria: Challenges and prospects. *Nigerian Libraries*, 51(2), 45-56.
- Hamad, S., Al-Zoubi, A., & Al-Hawari, M. (2020). Challenges to digital literacy skills among librarians in Jordan: An exploratory study. In Atchrimi, A., & Ogunbodede, E. (Eds.), *Digital competencies in library and information science* (pp. 45-60).
- Iyang, E., & Mngutayo, I. (2018). Assessing the digital skills gap among librarians in Nigerian academic libraries: Implications for productivity. *Library Philosophy and Practice*, 1-15.
- Izuagbe, R., Oladipo, O., & Ojo, A. (2019). Digital skills for librarians: An overview of current trends and future directions. *Library Philosophy and Practice*, 1-15.
- Krishnan, S. (2011). Essential skills for the 21st-century librarian: Bridging the gap between theory and practice. *Library Management*, 32(6), 415-425.
- Lau, J. (2006). The role of librarians in promoting digital literacy among users: Challenges and opportunities. *Journal of Librarianship and Information Science*, 38(3), 179-187.
- Luce, R. (2008). eScience and the role of libraries in research data curation: Opportunities for collaboration. *D-Lib Magazine*, 14(3/4).

- Mansour, N. (2017). Exploring digital skills and their impact on academic performance in higher education institutions. *Journal of Educational Computing Research*, 55(5), 650-670.
- Martin, A., & Grudziecki, J. (2006). DigEuLit: Concepts and tools for digital literacy development. *Journal of Educational Multimedia and Hypermedia*, 15(3), 277-289.
- Mbagwu, H. (2023). Challenges to digital literacy skills acquisition among librarians in Nigeria: An overview of current issues and solutions. *Nigerian Libraries*, 52(1), 1-20.
- Mbagwu, I.F. (2023). Acquiring Digital Skills for Effective Service Delivery of E-Resources by Library Professionals in Public Higher Institutions in Imo State, Nigeria. *Jewel Journal of Librarianship*, 18,(3),77-85. <https://www.jeweljournals.com>
- Mishra, P. (2018). Digital literacy in higher education: A review of literature and implications for practice. *Education and Information Technologies*, 23(2), 817-834.
- Mulat, T. and Natarajan, M. (2020). Digital literacy skills among library professionals in Jimma University Libraries. *Library Philosophy and Practice (e-journal)*. <https://digitalcommons.unl.edu/libphilprac/4629>
- Nawakanma, N. (2003). The impact of digital skills on job performance among librarians in Nigeria: A survey study. *Library Management*, 24(6/7), 300-308.
- Nawalu, S. (2000). Government funding and the development of library services in Africa: Challenges and opportunities. *African Journal of Library Archives and Information Science*, 10(1), 1-10.
- Ocholla, D., & Shongwe, M. (2013). The role of libraries in eScience and eResearch: Opportunities and challenges for librarianship in Africa. *African Journal of Library Archives and Information Science*, 23(2), 123-136.
- OECD (2016). Skills matter: Further results from the survey of adult skills. Paris: OECD Publishing.
- Okeji, E., Anyaoku, I., & Ojedokun, A. (2020). Assessment of digital literacy skills of academic librarians in private universities in Anambra State, Nigeria: Challenges and recommendations. *International Journal of Library and Information Science Studies*, 6(4), 1-12.
- Olabude, O. (2007). Internet development constraints in Africa: An analysis of the challenges faced by libraries. *Library Philosophy and Practice*. Retrieved from <https://digitalcommons.unl.edu/libphilprac>
- Olijo, T. (2018). The role of digital skills in enhancing library services in Nigeria: Challenges and prospects. *Nigerian Libraries*, 51(2), 45-56.
- Omekwu, C. O. (2003). The role of information technology in enhancing library services: A case study of Nigerian academic libraries. *Library Philosophy and Practice*. Retrieved from <https://digitalcommons.unl.edu/libphilprac>



- Osinulu, L. (2022). An Evaluation of Staff Digital Literacy Skills in Academic Library in South-West, Nigeria. *Ghana Library Journal*, 27 (2), 139-292. doi: <https://dx.doi.org/10.4314/glj.v27i2.10>
- Raju, J. (2014). Knowledge and skills for the digital era academic library. *The Journal of Academic Librarianship*, 40, 163–170. <http://dx.doi.org/10.1016/j.acalib.2014.02.007>
- Raju, R. (2014). The role of librarians in the digital age: Challenges and opportunities for library services in South Africa. *South African Journal of Libraries and Information Science*, 80(1), 1-10.
- Riley-Huff, D., & Rhodes, J.E.(2011). New roles for librarians in the digital age: Adapting to changing user needs through technology integration. *Library Trends*, 59(4), 693-707.
- Sahabi, F., & Elvis, M.O. (2021). Digital literacy skills among librarians: Barriers to effective service delivery in Nigeria. *Library Philosophy and Practice*. Retrieved from <https://digitalcommons.unl.edu/libphilprac>
- Sahabi, F., & Elvis, M.O.(2021). Barriers to effective library services delivery in Nigeria: The role of ICT skills among librarians. *Library Philosophy and Practice*, 1-15.
- Seena, K., & Pillai, S. (2014). Digital literacy skills for the information age: A study of library professionals in Kerala, India. *International Journal of Library and Information Studies*, 4(3), 1-10.
- Tanawade, B.S. (2011). The impact of inadequate training on librarians' performance in the digital age: A case study from India. *Library Management*, 32(6), 415-425.
- Tennant, R. (1999). The digital librarian: New roles for a new age. *Library Journal*, 124(11), 34-38.
- Thompson, L.M.(2009). Capacity building for library staff: A framework for professional development in a changing technological landscape. *Journal of Library Administration*, 49(5), 471-487.
- Trepanier, S. (2012). Defining digital literacy: An overview of current literature and practices in libraries and information science education. In Bassey, A., & Ayeni, A.O. (Eds.), *Digital Literacy in Libraries* (pp. 25-35). New York: Routledge.
- Ukwoma, S., Okeji, E., & Anyaoku, I. (2016). Digital literacy skills and competencies among librarians in Nigeria: A survey of public and private universities in Anambra State. *International Journal of Library and Information Science*, 8(5), 45-54.
- Wolfwater, M. (2006). Skills for the 21st century librarian: An overview of essential competencies needed in modern librarianship. Retrieved from <https://meredith.wolfwater.com/wordpress/2006/07/17/skills-for-the-21st-century-librarian/>